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A METHOD OF CONSTRUCTING VAPOR BATHS,

SO AS TO RENDER THEM OF SMALL EXPENCE, AND OF COMMODIOUS USE, IN PRIVATE FAMILIES.

WITH A DESIGN AND DESCRIPTION OF A CONVENIENT HOT WATER BATH.

By JAMES PLAYFAIR, Architect.

K

No 9. Howland Street. Tottenham
Court Road
Makes the Vapour Bath

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TO

SIR WILLIAM FORDYCE, M.D.

WHO IS NOT MORE DISTINGUISHED

FOR THE EXTENSIVENESS AND ACCURACY OF HIS

MEDICAL KNOWLEDGE,

THAN FOR THE

POLITE AND FRIENDLY ENCOURAGEMENT

WHICH HE IS HAPPY TO BESTOW

ON EVERY USEFUL AND ELEGANT ART;

THESE HINTS,

FOR THE CONSTRUCTION OF VAPOR BATHS,

ARE MOST RESPECTFULLY DEDICATED,

BY HIS MOST OBEDIENT,

AND MOST HUMBLE SERVANT,

THE AUTHOR.

A
METHOD
OF CONSTRUCTING
VAPOR BATHS,
FOR THE
USE OF PRIVATE FAMILIES.

ART is progreſſive in her nature, and, as ſhe advances, acquires greater rapidity, as well as eaſe, in her motions. The ends which ſhe attains at firſt, by means complicated and difficult, ſhe afterwards brings about without labour, and in a ſimple manner.

Thus her inventions are rendered of more general utility. They are not confined to the opulent and the great, but diffuſed among the middling, and even lower ranks of the people. They become at laſt a general bleſſing, and alleviate the miſeries, and multiply the enjoyments, of human life; the only purpoſes, without doubt, to which all the views of Science and Art ought ultimately to tend.

Theſe purpoſes are ſerved in an eminent degree by Vapor and Hot Baths; the former ſo efficacious, when uſed with proper ſkill and caution, in the cure of various diſeaſes ariſing from Colds, or Obſtructed Perſpiration; the latter ſo conducive, according to the general conſent of Nations, at once to health, cleanlineſs, and comfort. But there has not, as yet, been diſcovered any mode of conſtructing Baths of this kind, but what is attended with an expence beyond the reach of moderate, and even of genteel fortunes.

Hence the generality have recourſe to Public Baths. But theſe too, as well as the Private, are enormouſly expenſive; and, beſides this circumſtance, are attended with many other inconveniencies, and even the moſt ſerious dangers. It is

incon-

inconvenient, eſpecially in circumſtances of diſtreſs, to live at a diſtance from home, and from thoſe whoſe agreeable company, gentle offices, and ſoothing ſympathy, are ſo neceſſary to lighten the burthen of affliction.

It ſhould alſo be obſerved, that it is inconvenient to be under a neceſſity of going to the Bath at ſtated or particular hours; and that the multiplied inconveniencies and expences inſeparable from attending Public Baths, have often, in all probability, determined Patients to abandon them through mere chagrin; and that too, perhaps, at a period when a little longer perſeverance would have operated the cure.

But what is worſt of all, Public Baths are frequently little better than Hoſpitals or Lazarhouſes. Here the ſtranger is diſquieted with the uneaſy reflection, that he knows not the variety of diſtempers and diſtempered perſons that may have occupied the very ſpots in which he ſeeks either health or refreſhment.

To breathe hot air, impregnated with moiſture, and the ſeeds of a diverſity of infectious diſeaſes, is not only diſguſting to every delicate mind, but often, no doubt, productive of great danger and miſchief to the human conſtitution.

Theſe Conſiderations, it is hoped, will juſtify an Attempt to point out a Method of erecting Vapor Baths, at ſo ſmall an expence, that they may be enjoyed by every family poſſeſſing the ordinary means of competent ſubſiſtence; and on ſo commodious a plan, that they may be eaſily removed, as circumſtances ſhall require, from one apartment to another.

It will be allowed, that Public Baths are, of neceſſity, raiſed and kept at a great expence. The original coſt muſt be conſiderable; and not only the Proprietor, but a number of Retainers muſt depend for their ſubſiſtence on the money collected from the people that reſort to them. Had the Conſtructors, however, of Vapor Baths, underſtood the properties of Vapor, they would have been enabled to erect Baths leſs expenſive, but, in every reſpect, more commodious. The apparatus hitherto uſed for the purpoſe of ſurrounding an individual body, or, as ſometimes happens, only a ſmall part of it, with warm and moiſt vapor, has been ſuch, as properly applied, might have kept a conſiderable number of perſons in a more intenſe heat than the human body is indeed capable of bearing.

Water converted into ſteam, occupies about ſeventeen hundred times as much ſpace as when in its natural ſtate. It will therefore be allowed, that a ſmall boiler can furniſh a quantity ſufficient to ſurround the human body; particularly, as the Bath is not filled with ſteam, but with air impregnated with water which it has diſſolved, and as the greater part is conſequently air.

Vapor that ariſes from water, muſt either continue in ſteam, which is hotter than boiling water, or it muſt reaſſume its appearance of water, and ſettle in drops on the veſſel that contains it, unleſs when mixed with air; for that fluid is capable of keeping a part of the water diſſolved, and in a ſtate of ſuſpenſion. In this caſe it is not ſteam, but water in ſmall particles, ſuſpended in, and mixed with, air. In this latter ſtate, it is applied in the Vapor Bath. The quantity of water that can be ſuſpended in this manner in air, is regulated by the heat of the air. Hot air poſſeſſes a power of diſſolving, and ſuſpending a greater quantity of water than colder air. If the veſſel in which this moiſt vapor is contained, were as hot as it is neceſſary that the air ſhould be, no new ſupply would be requiſite, ſince the ſame water would continue ſuſpended for ever. But as this cannot be effected, the beſt thing that can be done is, to make the Bath of ſuch materials as are leaſt apt to tranſmit and communicate heat.

The manner in which bodies either heat or cool is this: the hotter body gives part of its heat to that which is neareſt to it: this again imparts, though

though in a leſs degree, its acquired heat to that part of the cool body which is not immediately in contact with it: and the body which receives the heat from the former, and communicates it to the latter, is ſaid to tranſmit the heat.

In the inſtance of a fire, a veſſel, and the water it contains; the tendency of the fire is to give heat to the veſſel, and to make it as hot as itſelf; but the veſſel, when it receives heat, neceſſarily tranſmits part of it to the water; and the effect is, that the fire loſes heat, the water acquires it, and the veſſel continues in an intermediate ſtate. It is in this way that heat is conducted or tranſmitted from one body to another; and the nearer the bodies are to each other, the more eaſily and effectually is the heat tranſmitted.

Heat is communicated between the different particles of matter in any ſubſtance, in the ſame manner that it is between different bodies; and as in different bodies, the nearer they are, the heat is more effectually conducted; ſo in the ſame body

body it paſſes from one part to the other, with greater or leſs rapidity; and in a greater or leſs quantity, in proportion as the particles of which it conſiſts are nearer or more intimately connected. As in matter, nearneſs of particles is termed Solidity, and is eſtimated by the ſpecific weight, that which is ſpecifically heavieſt being moſt ſolid; ſo, in like manner, light bodies tranſmit heat ſlowly and imperfectly, while heavy bodies tranſmit it with greater expedition, and in greater abundance. This, in every known caſe, is confirmed by experience. Iron, copper, and other ſolid bodies, are called Conductors of Heat, and are employed for the purpoſe of tranſmitting it, whenever it can be done: wood, plaiſter, hair, feathers, and ſuch light ſubſtances, are uſed where heat is not to be tranſmitted, but intercepted; and theſe are called Non-conductors of heat. As the effect to be produced in the Vapor Bath, is not to communicate the hot vapor within, but to prevent it from tranſmitting its heat to the external air, through the ſides of the Bath, this, it is evident, ſhould be compoſed of non-conducting ſubſtances.

The heat communicated from one body to another, bears alſo a proportion to the quantity of ſurfaces that come in contact. The veſſel and pipes ſhould therefore be no larger than is neceſſary.

From theſe Facts and Obſervations the following Rules for conſtructing Vapor Baths are deduced. After making a boiler of the ſize repreſented in Fig. 1. which is ſomething larger than a tea-kettle, let the pipe through which the Vapor is conveyed be no larger than is conſiſtent with conveniency; wrap it round with flannel, liſt of cloth, or any other non-conducting ſubſtance; let the veſſel into which the Vapor is to be conducted, be of wood, (deal is better than oak, as it is lighter) and by no means let it be lined with lead, or any other metal. Wood or cloth ſhould be preferred to metal, wherever they can be ſubſtituted, as theſe light non-conducting ſubſtances never acquire ſuch a degree of heat, as to render them dangerous, or diſagreeable to the touch.

As, on the one hand, inattention to theſe ſimple Rules has occaſioned the expence, magnitude, and inconveniency of the Vapor Baths now in uſe; ſo, on the other, by attending to them, a Bath for any private family may be conſtructed at leſs expence than it would coſt an individual to attend a public one for a ſingle month.

Theſe Baths may likewiſe be enjoyed in any part of the country; while the uſe of the Public ones is limited to great Cities.

The difference of expence in making Baths according to theſe Rules, and in erecting * thoſe in

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* It is a fact, that there is at this time a ſet of Vapor Baths near London, the expence of conſtructing which has been ſeveral hundred pounds; the expence of once bathing is half-a-guinea; and a boiler, large enough to work a ſmall fire-engine, is employed to ſerve it with ſteam. For Five Guineas a Bath may be made; which is only the expence of bathing ten times at a Public Bath, or twenty times at thoſe that are moſt reaſonable.

in preſent uſe, is ſo very great, that perhaps its reality may be queſtioned. It has, however, been put beyond all doubt by experience.

A common tea-kettle is quite ſufficient to furniſh Vapor; and a tea-kettle would be recommended, to avoid the expence of a tin boiler, were it not of an inconvenient ſhape; for the pipe that conducts the Vapor ſhould come from the top of the boiler, or nearly ſo; whereas, in a tea-kettle, it comes from the lower part.

As this is written with a view to render Vapor Baths of general utility, and to put it in the power of private families to poſſeſs them, Plans and Sections of ſeveral different ſorts are added, correctly drawn to a ſcale, and ſo explicit, that a good work-man may readily conſtruct any one of them.*

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* By applying at the Publiſher's, the Reader may have the Name and Addreſs of a Workman who conſtructs theſe Baths; and who, from his practice, can make them without committing miſtakes, and will contract for them at a low price.

OF THE CONSTRUCTION OF WARM BATHS.

AFTER having reduced the conſtruction of Vapor Baths to a ſimplicity that will make them generally uſeful, it may not be improper to add ſome Directions for conſtructing Warm Baths, in a ſimple and convenient manner.

As the preſent mode of erecting them is neither very improper nor very expenſive, there is no occaſion to make ſo material an alteration in their fabrication, as that which has been propoſed in the Conſtruction of the Vapor Bath. What follows, is chiefly intended to remedy ſome inconveniencies, and to leſſen ſome expences, which attend the uſe of Warm Baths, as they are now conſtructed.

The expence of the Warm Bath conſiſts in the quantity of warm water that is employed in uſing it. This, however, will be found, in general, much greater than is abſolutely neceſſary; while the time required to warm ſo much water, renders it exceedingly inconvenient.

The Ancients, who were far advanced in luxury, and well acquainted with the articles in which it conſiſted, were univerſally accuſtomed to Bathing: and although the Public Baths, for the uſe of the Emperors, were magnificent and ſpacious edifices; yet it appears, that the Baths uſed in private houſes were no larger than merely anſwered the purpoſe of immerſing the body in water; even although labour was then cheap, and luxury confined to the Great, and of conſequence, very many ſervants were retained by every man of opulence.

The method of computing the ſolid bulk of an irregular figure, was diſcovered by Archimedes; who, on going into the Bath, obſerved that the water roſe on the ſides of it, in proportion as he went deeper; which is a proof, that the

Bath

Bath was not much larger than was neceſſary to contain the human body; ſince, if it had, the riſe of the water on the ſides would have been too inconſiderable to be obſerved.

From this circumſtance it is at leaſt probable, that ſmall Warm Baths were then in uſe among men practiſed in all the refinements of that particular indulgence, and to whom the inconveniencies of large ones would have been but trifling. It is not unreaſonable to ſuppoſe, either that they did not think the large deſirable, or that they had other reaſons for preferring the ſmall.

In order to avoid the inconveniencies ariſing from the neceſſity of warming great quantities of water, and the expence, as well as extreme difficulty, of changing it by timely and plentiful ſupplies, might we not take a hint from the Ancients, and, in the Conſtruction of our Warm Baths, confine our Plans to the neceſſary ſize?

Even to the Rich, who are above the neceſſity of obſerving an exact economy, it is very agreeable and convenient to have Baths that can be got ready on ſhort notice; and ſuch only are thoſe that require but a ſmall quantity of warm water. A Bath of ſmall dimenſions may be occaſionally carried into any apartment; a conveniency not to be derived from a large one.

The Bath in Plate IV. is one that will not require much hot water: it is cheap and portable, and may be uſed in any chamber, with the fulleſt effect, and the greateſt conveniency.

Every mode of conſtructing Baths will ſtill be attended with ſome diſadvantage or other. What is aimed at here, is only to point out that which, on the whole, appears the leaſt objectionable.

REFERENCES TO THE PLATES.

PLATE I.

Is a Plan and Vertical Section of the Vapor Bath.

A Is a Tin Boiler, about a foot wide, and ten inches deep, placed on the fire to heat the water.

B B Are Tin Tubes, an inch diameter, the one fixed to the Boiler, the other to the Bath, to convey the Vapor.

C C Tin Tubes that join on the two former, and may be lengthened out or ſhortened at pleaſure, as the Bath may be wanted nearer to, or farther from, the fire.

D A Regulator for the Vapor. See Plate II. Fig. 2.

E A Deal Pipe, that conveys the Vapor to the bottom of the Bath.

F A Wood Cover, placed over the aperture of the latter Pipe, ſerving to ſpread the Vapor equally through the Bath.

G The Bath, made of Deal, in which the perſon who is to bathe ſits on a ſtool, placed at pleaſure. The Bath is 3 feet 6 inches high, 2 feet 6 wide, and 2 feet 3 broad.

H One ſide hung with hinges, as a door.

I The Top, which is a frame covered with cotton cloth, is contrived to draw round the neck, or lower, as may be found neceſſary, and confines the Vapor within the Bath, at any required height.

K The Stool, the top of which ſhould be full of holes.

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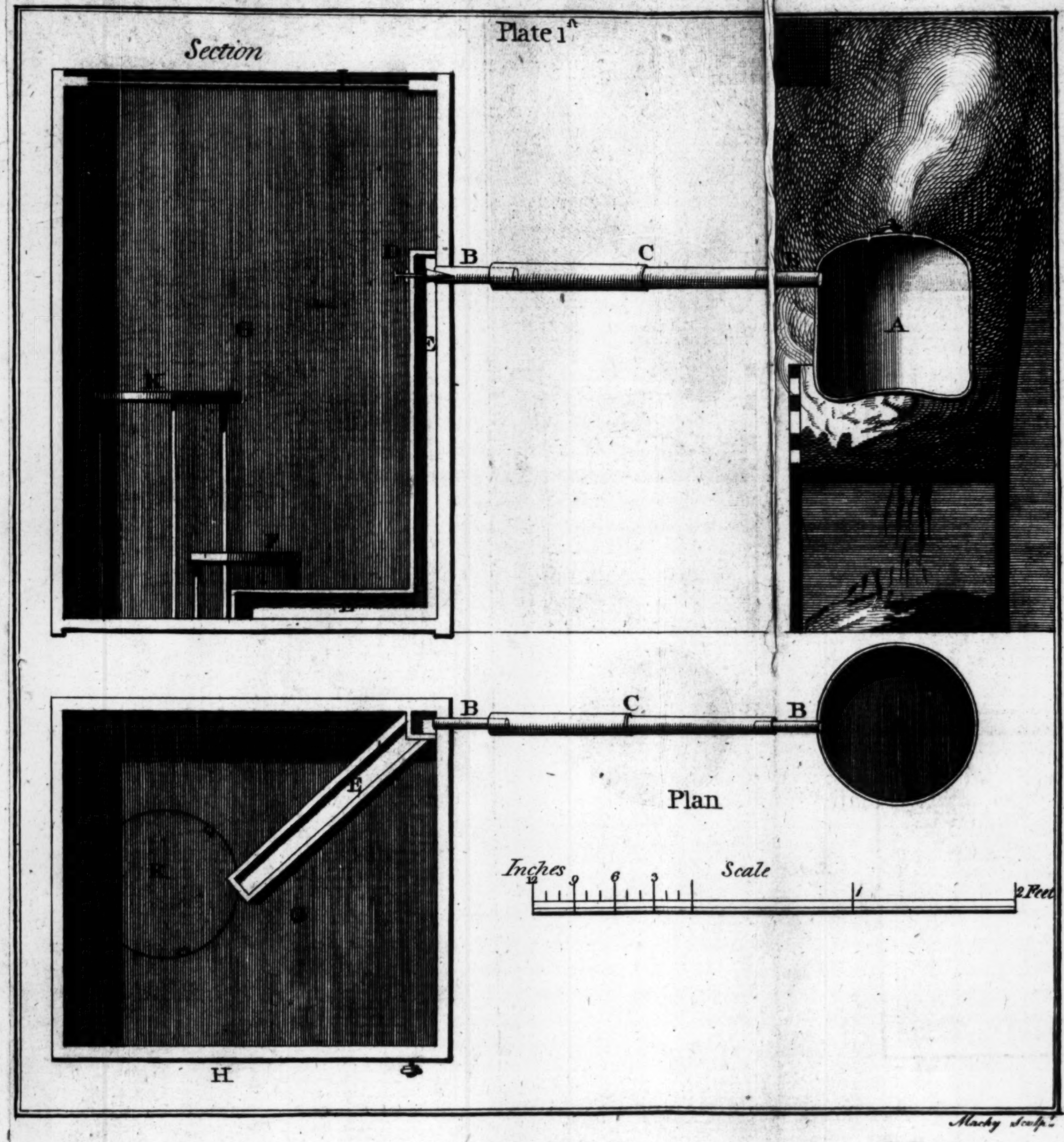
Plate 1st



Macky Sculp.

Plate 2.

Fig: 2.

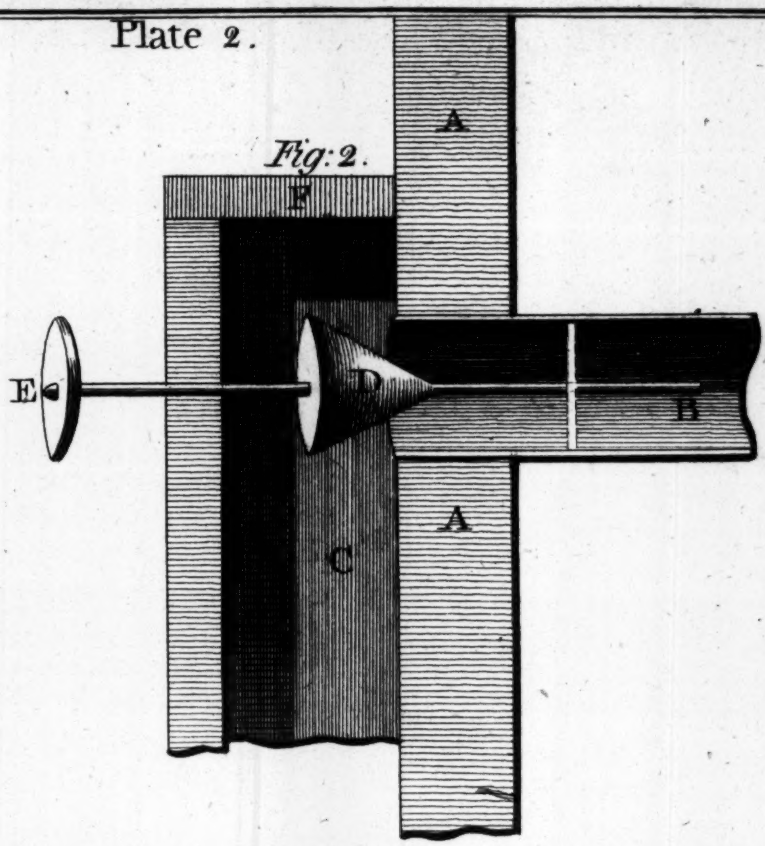


Fig: 1.

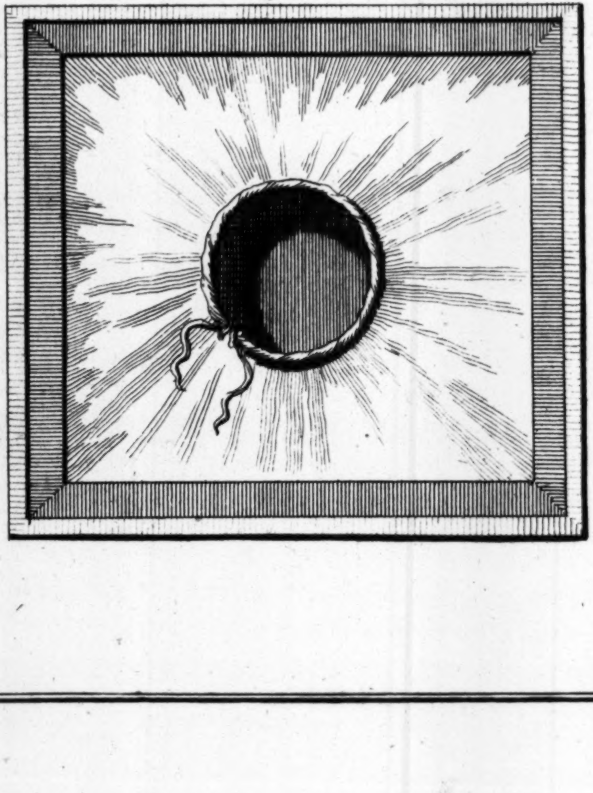
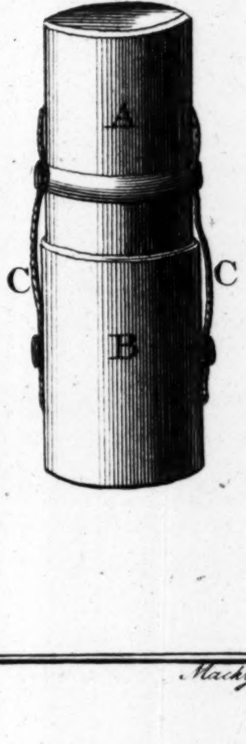


Fig: 3.



Macky Sculp.

PLATE II.

Fig. 1. A View of the Top, or Cover of the Bath, conſiſting of a Wood Frame, and Cloth to draw round the neck.

Fig. 2. View of the Steam Regulator.

A Repreſents the ſide of the Bath.

B The Pipe.

C The Pipe within the Bath.

D A Metal Cone, fixed upon a Wire, which, by being moved inwards or outwards, regulates the quantity of Vapor.

E The Handle for moving the Regulator.

F The Top of the Pipe C, which is to be taken off when only the upper part of the Bath is to be filled with ſteam; in which caſe, the lower end of the Pipe muſt be ſhut up.

Fig. 3. A and B Repreſent the joining of the Pipes that conduct the ſteam, covered with leather, as C C.

PLATE III.

Fig. 1. Is a Plan of the Sides of a Portable Bath, when put up ready for uſe.

Fig. 2. A Plan of the Sides, when folded up for carriage.

Fig. 3. Section of a Bath for bathing one limb or joint. The Boiler is ſuppoſed to be heated in the manner of a Tea-urn.

Plate 3.

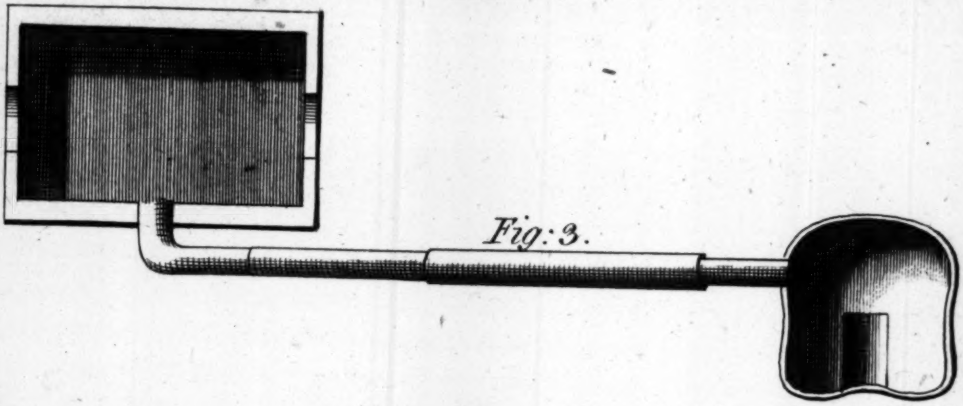


Fig:3.

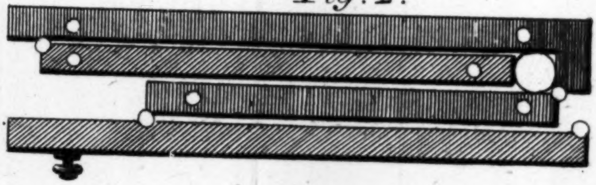


Fig:2.

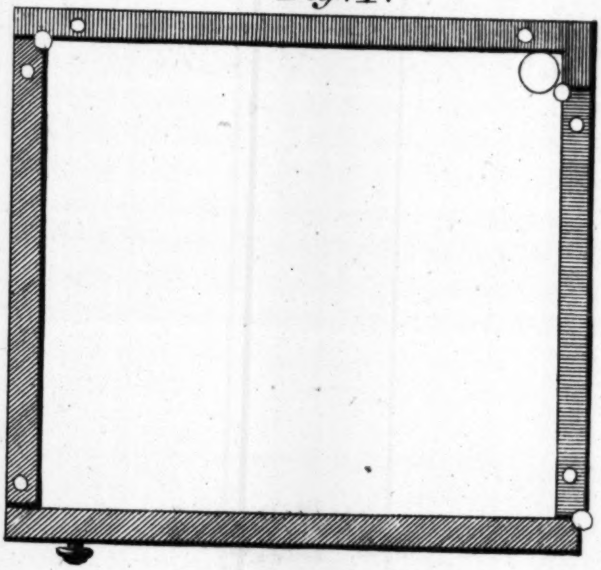


Fig:1.

Macky Sculpt.

Plate 4

Fig: 1

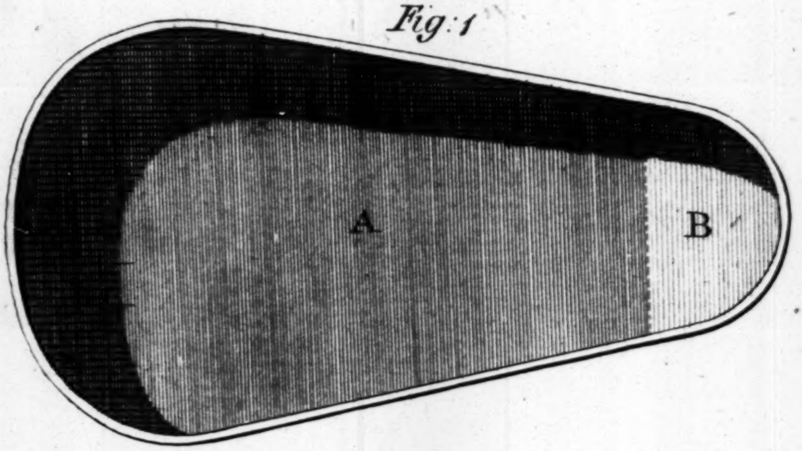


Fig: 2

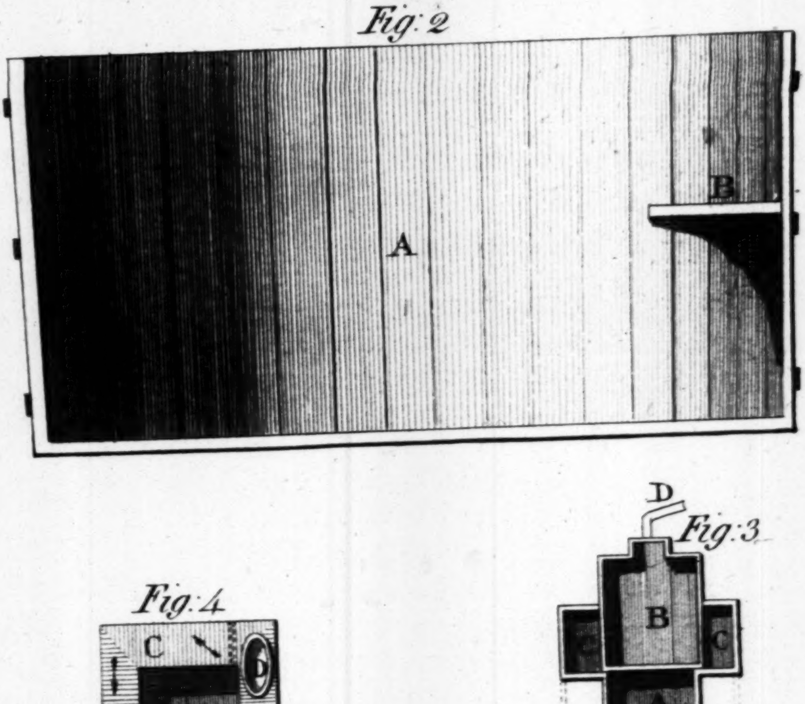


Fig: 4

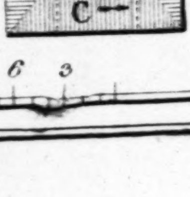
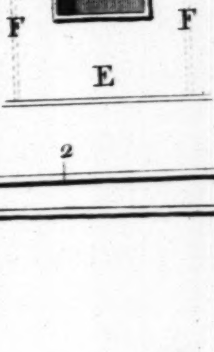


Fig: 3



Macky sculp.

PLATE IV.

A Is a Plan and Section of a Warm Bath, of ſuch a ſize and ſhape as will not require more water than is neceſſary for covering the body conveniently. The inſide meaſures 3 feet 4 inches long, 23 inches wide at one end, 12 inches at the other, and 24 inches deep. This Bath will require but a ſmall quantity of boiling water to give a ſufficient heat, which is all the advantage it can have over others.

B Is a ſtep of wood put acroſs the narrow end, for the conveniency of going in and getting out with eaſe.

Fig. 2. A B Plans and Sections of Boiler and Fire-place, of a proper ſize and conſtruction, to ſupply Vapor for the Vapor Bath with very little fire, and ſuch as may be carried up into any bed-room eaſily.

A Is the place for the fire.

B The Boiler.

C Flue going round the Boiler, and conducting the flame in the direction of the ſmall darts.

D The Chimney, to take off the ſmoak.

As this conſtruction is attended with very little trouble, and is perfectly convenient, it is equally applicable to the Hot Bath, only that it muſt be about three times as large as this Drawing.

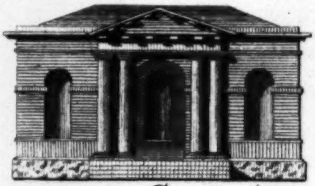
PLATE V.

Is a Plan and Elevation of a ſmall Building, ſuch as would be proper to be erected in the Country, to contain a Cold, Warm, and Vapor Bath: It might either be joined to the houſe by a covered paſſage or not, as might be found moſt convenient. This building, Baths included, might coſt about 100l. or not quite ſo much.

The ſecond Elevation is propoſed to be placed as an object in the grounds, having the appearance of a Temple, which would make an additional expence of 18l.

FINIS.

Plate 5



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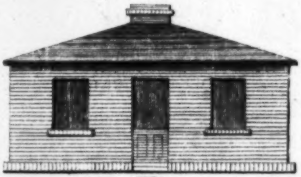

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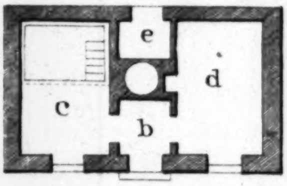

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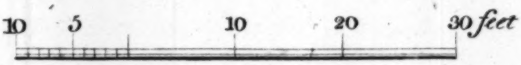

Macky Sculpt